Prairie Update

A publication of the Saskatchewan Watershed Authority **Volume 25 Fall 2005**

Protecting Saskatchewan's Piping Plovers

It started out as a promising summer for Piping Plovers in Saskatchewan. Breeding conditions had been good, and the number of mature adults returning to the province had been increasing – if only slightly – over the past few years. Everything indicated that this year would produce an above-average number of young. In fact, by June 3rd, biologists from the Saskatchewan Watershed Authority had found near-record numbers of adult plovers and nests.

The newborn Piping Plover chicks are moved to brood boxes with heat lamps.

But then it began to rain over Alberta. And it kept raining.

It rained so much that waterways across the province overran their banks, overloading drinking water and sewer systems, washing out roads, tearing out bridges and forcing people from their homes.

That meant big trouble for the tiny Piping Plovers. The birds nest on exposed sandy or gravelly beaches of lake shores, and one of their favourite nesting areas in all of North America is Saskatchewan's Lake Diefenbaker. At that point in the breeding season, over 300 adults and about 130 nests had been located along the shorelines of Lake Diefenbaker. The problem was, the massive reservoir is part of the Saskatchewan River system, and with a huge surplus flow on its way from Alberta, water levels in the reservoir were expected to rise by several feet, threatening to wash away hundreds of potential hatchlings.

A Piping Plover chick at the day-old stage.

The Authority's team of biologists scrambled to move the Plovers' nests to higher ground. However, it soon became apparent that moving the nests was a futile strategy – water levels were simply going to rise too high. In total, only 17 of the 130 nests would be saved through this effort. The remaining 113 nests were predicted to be flooded by June 14th.

If the birds were to have a chance at survival, the team would have to come up with a new plan. That plan would involve relocating the eggs and rearing the young in captivity.

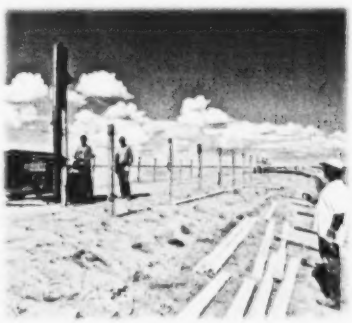
Learn-By-Doing

In cooperation with SaskPower, Nature Saskatchewan and the Canadian Wildlife Service, Authority staff had begun locating and monitoring Piping Plovers in an area from Saskatchewan Landing to Saskatoon in early May.

On June 11th, with the floodwaters closing in, the Piping Plover eggs were collected from the shores of Lake Diefenbaker and transferred for captive rearing. It would be the first time a captive rearing project had ever been undertaken in Saskatchewan.

"We knew what types of facilities we were going to need, we knew we'd need an area for brood rearing, we knew we'd need flight pens, and so on," says Corie White, a Watershed Ecologist with the Saskatchewan Watershed Authority who coordinated the rescue and rearing effort.

"But in terms of the nitty-gritty details, it was a total learning experience. And a lot of that came through trial-and-error."



Constructing flight pens at Chaplin Lake.

By June 13th, a total of 272 Piping Plover eggs had been collected and placed under a large incubator secured from the University of Saskatchewan. A large machine shed at the Watershed Authority's Gardiner Dam facilities was cleared out to serve as a temporary home for the chicks once they hatched.

While it had been a formidable task to collect the Piping Plover eggs from the shoreline, the real work for the team was yet to come.

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"In terms of workload, we had no idea. Those little birds were demanding!" says White.

Challenges and Successes

The Plover eggs began to hatch on June 15th. Once hatched, the young needed to be moved immediately to specially-built brood boxes. The boxes were equipped with heat lamps to maintain temperatures at 90-95°F. Because the building the chicks were being kept in was not climate-controlled, the temperatures of the brood boxes had to be monitored constantly – too hot or cold and the chicks would die.

An Endangered Population

The Piping Plover is a small shorebird, distinguished by a single narrow black breast band, a black bar on the crown, orange legs and an orange-tipped bill. It is a localized breeder across the southern Canadian prairies and in the United States from South Dakota to Nebraska to Lakes Michigan and Erie. It also breeds along the Atlantic coast of Canada and into the United States.

Piping Plovers were declared an endangered species in Canada in 1985, and are listed as such under the Government of Canada's *Species at Risk Act*. In 2001, census data indicated that the North American population of these small birds was a mere 5,945 adults.

Saskatchewan is a very important breeding haven for the Piping Plover. Of all North American adults, 13.5 percent nest annually in this province. Even more significantly, it was estimated that six percent of the total continental population breeds along the shores of Lake Diefenbaker.

"When you consider that you are dealing with an endangered species with so many young birds being born here in Saskatchewan, you realize what a detriment losing the six percent of the population that comes from around Lake Diefenbaker would make," says Dr. Glen McMaster, Manager of Habitat Assessment with the Saskatchewan Watershed Authority.

"It really was critical that we do what we could to save these birds."

Feeding the Plovers proved to be a major challenge. A captive rearing facility in the U.S. had previously used live bloodworms as a primary food for Piping Plover chicks. However, live bloodworms were no longer available in North America. The closest distributors were in China, and shipping the worms from there was simply not feasible.

The team settled on the next best type of food for Plovers – live blackworms. These worms, cultured only in California, were shipped to Saskatchewan via a Vancouver distributor. In addition, approximately 100,000 live crickets were shipped in from Ontario, and 60 pounds of red wiggler worms were sourced from New Brunswick.

The chicks had to be fed five times a day, between 6:00 a.m. and 8:00 p.m., seven days a week. Members of the team had to customize the type and amount of food in every meal to the age and dietary requirements of each brood of hatchlings.

"It probably took eight hours a day just for food prep, another five hours a day just to feed the birds, and then at least five hours a day recording data, in addition to all the other activities," White recalls.

"We were working sixteen to eighteen hour days. As soon as you were done one feeding, it was time to start the next."

Despite these considerable efforts, initially only about half of the chicks that hatched were able to survive. Many of these were lost because red wiggler worms proved to be difficult for the chicks to handle, and often became covered with the sand that was used to line the brood boxes. The birds then ingested the sand, which filled their gizzards until food could no longer be digested. Once the team determined the problem, they replaced the sand in the boxes with gravel, greatly increasing chick survival.

Once the birds' body mass reached 25 grams, they were transferred to specially-constructed outdoor flight pens located at Chaplin Lake. Here, the chicks began to learn how to forage for natural prey, avoid predators and acclimate themselves to natural weather conditions. Finally, after they were at least 28 days of age and able to fly, the chicks were marked with unique coloured bands and released from the pens into the wild.

Watershed Ecologist Cone White releases a Piping Plover into a flight pen.

Of the 247 viable eggs that were collected, 104 (42 percent) of the chicks survived. This is a fairly good success rate as compared to that of wild Piping Plovers in the Chaplin area, which average 27 percent.

"I think the success of the project will really be established in the next few years, based on their survival and the recovery [of banded adults]," says White.

A total of 104 Piping Plovers were released thanks to the captive rearing effort.

"But when you do see some of the released chicks out there in their natural habitat, foraging on their own and flying, it's a pretty good feeling. All in all, I think it went about as good as it could go."

Turning Grass Into Beef

Bruce and Patti Chern are a Stockholm area family who manage 500 cows and are concerned stewards of their land.

They've been ranching since 1988, and have operated Golden View Ranch

Bruce and Patti Chern with children Brett, Erin, Jessica, and Carleton

southeast of Yorkton since 2003. Their land has a gentle rolling topography with many potholes and riparian areas. Over the past three years, they've converted close to 2,300 acres back to grass.

"Our goal is to have our whole ranch as grass because it makes your riparian areas work better…we're going to keep planting until it's all seeded into grass and we're going to shoot for stockpiled grazing into the fall and also in the spring. Current and future economics enhance this," says Bruce.

Converting their land into perennial cover has provided them with more than enough forage for their herd.

"We don't even have all our land seeded into grass yet and we've got way too much grass. That's not a bad position to be in," says Bruce.

With assistance from the Prairie Farm Rehabilitation Administration and the Saskatchewan Watershed Authority through the Canadian Wildlife Service and the Prairie Shores Program, the Cherns have developed a well for off-site watering of their cattle. All 10 miles of their pasture pipeline was installed with a pipeline plow, with 2 inch PVC pipelines connecting the well to their paddocks. A portable trough is also attached to the pipeline.

"We don't rely on our sloughs for water. Cows usually choose the fresh water over the slough water. By reducing the slough usage, disease is reduced," says Bruce.

The Cherns say their grazing management and off-site watering is cost-efficient for their ranch's future.

"All our costs are only one time…our infrastructure here is our fencing, our grass and our water system," says Bruce.

The Cherns have also participated in the Canada-Saskatchewan Environmental Farm Plan (EFP) Program.

Patti says, "The Plan includes all the information and dimensions for managing farms and ranches within a reasonable, common sense approach." Bruce adds, "We have to be good stewards of this land if we want to be sustainable. The land can only return what you manage into it."

The Cherns feel the Plan has made their ranch more competitive as a business, and has helped them find a market for their beef through a group called Prairie Heritage Beef (formerly Canadian Country Natural Beef).

Bruce describes their group. "It's based on five pillars that we promote: hormone free, antibiotic free, no use of animal byproducts, traceability, and environmental stewardship."

"The Environmental Farm Plan provides third-party verification, which is instrumental for us. It's that extra vote of confidence that we stand behind what we say," says Patti.

"We feel that this is a great start to differentiating ourselves from other marketing plans out there. We're marketing our beef through a grocery store chain on Vancouver Island, and it's going really good," says Bruce.

A pipeline plow trenches in and installs PVC pipe all in one step
Photo courtesy of Ducks Unlimited Canada

Bruce sums up the management philosophy for their ranch:
"We want to take grass and turn it into beef… to have healthy animals, you need healthy soil, healthy grass and balanced riparian areas."

"All our costs are only one time…our infrastructure here is our fencing, our grass and our water system."

Focus On:
The Assiniboine River Watershed and Yorkton Area Aquifers

The Assiniboine River Watershed incorporates a broad diversity of water users and water-related activities. The watershed has a total drainage area of over 21,000 square kilometers, overlapping the borders of Saskatchewan and Manitoba. Over three-quarters of this area falls within Saskatchewan, and it is populated by over 45,000 people. Within the boundaries of the watershed are the Yorkton Area Aquifers, which supply water to the City of Yorkton and surrounding communities. The Assiniboine River Watershed and the Yorkton Area Aquifers are two of seven priority planning areas in the province. In the spring of 2005, joint Advisory and Technical committee bus tours were conducted in both planning areas. These tours were intended to give participants a better understanding of water usage in these areas. For more information on the Assiniboine River Watershed, please contact Rob Kirkness at (306) 786-1486, and for more information on the Yorkton Area Aquifers please contact Brad Ashdown at (306) 953-2868.

1 H. M. Bailey Water Pollution Control Plant

The City of Yorkton's H. M. Bailey Water Pollution Control Plant was officially opened in 1991 after two years of expansion. It is a semi-automated secondary wastewater treatment facility, and is the only mechanical treatment plant in the Assiniboine Basin. The plant treats a mixture of domestic and industrial wastewater, and discharges its treated effluent into Yorkton Creek. The plant's operation is permitted and regulated under the *Saskatchewan Environmental Management and Protection Act* (2002).

2 Canora Weir

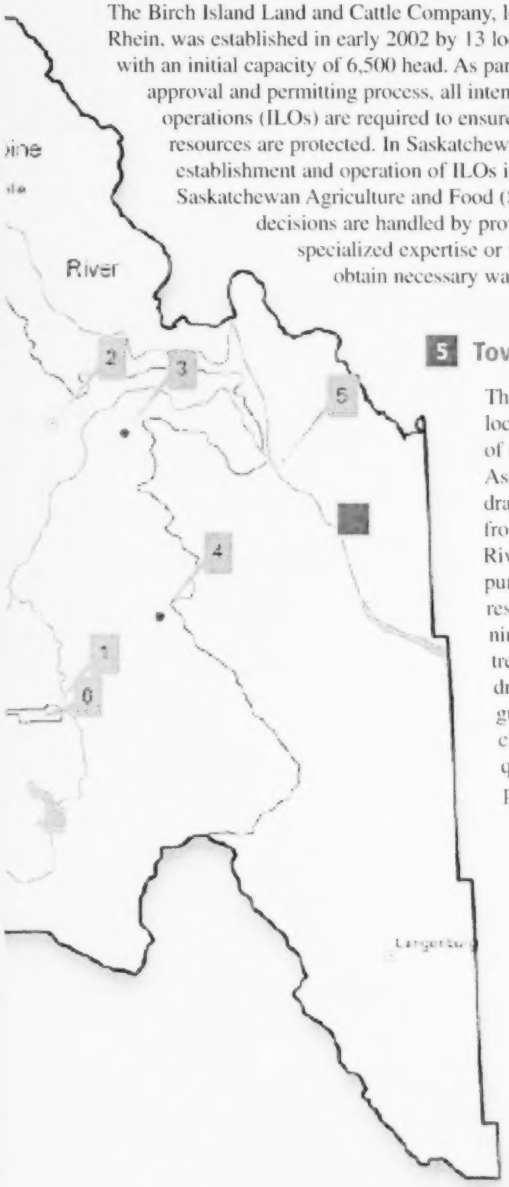
Prior to the completion of a water supply upgrade project in 2000, water from the Whitesand River held by the weir served as the Town of Canora's primary municipal water source. Canora now draws its water from eight wells drilled several miles northeast of the town. However, some of the water held by the weir is still used by the town for non-domestic purposes. The Canora Weir is a total blockage to fish migration through the Whitesand River. The gathering of fish at this blockage during spawning season makes the Canora Weir a popular spot for recreational fishing.

3 Doug Lapitsky

Doug Lapitsky ranches along the Whitesand River near Mikado. In order to improve water quality and riparian habitat for fish and wildlife, the Authority helped Doug construct a livestock exclusion fence and a remote stock watering system. The project was funded by Saskatchewan Environment through the Fish & Wildlife Development Fund. Doug is also a member of the River Ridge Fish & Game branch of the Saskatchewan Wildlife Federation and is Habitat Chairman of Region 3. This spring, the branch committed its members' volunteer time to help monitor fish barriers along the Whitesand and Assiniboine Rivers.

4 Birch Island Land and Cattle Company

The Birch Island Land and Cattle Company, located near Rhein, was established in early 2002 by 13 local investors, with an initial capacity of 6,500 head. As part of their approval and permitting process, all intensive livestock operations (ILOs) are required to ensure that water resources are protected. In Saskatchewan, the establishment and operation of ILOs is regulated by Saskatchewan Agriculture and Food (SAF). Approval decisions are handled by provincial specialists from SAF who refer the application to other agencies – those with specialized expertise or with a stakeholder interest – for their review and comment. ILOs are also required to obtain necessary water exploration and use approvals from the Saskatchewan Watershed Authority.



5 Town of Kamsack

The Town of Kamsack is located at the confluence of the Whitesand and Assiniboine Rivers, and draws its water directly from the Assiniboine River. The water is pumped into an off-stream reservoir which can hold a nine-month supply, then treated to meet national drinking water quality guidelines. One challenge this system creates is that in drought years surface water can vary greatly in quality, which makes it difficult to treat. The Town is therefore currently investigating possible groundwater sources in the area as an alternative.

6 Yorkton Area Aquifers

The City of Yorkton has historically relied on groundwater from the Logan, Leech Lake and Collacott aquifers for its municipal water supply. In the early 1990s it became apparent that if the city continued to expand, other water sources would have to be identified. The City investigated the capacity of the three aquifers already in use, and also located a new aquifer – the Sturdee aquifer – to use as a source. Today, Yorkton draws its water from 14 wells drilled into the four aquifers, located in and around the city. Now, with the added capacity of the Sturdee aquifer, water supplies are not projected to be a limiting factor on the city's future growth. The Authority is in the process of developing a management plan to protect this important water source.

New Well Decommissioning Program

The Saskatchewan Watershed Authority recently launched a new program to increase awareness of, and help landowners deal with, abandoned wells.

"What we want to do is promote responsible stewardship of our groundwater resources in areas where there is a relatively high risk of contamination. At the same time, we will also be collecting data in an attempt to determine the scale of the issue," said Tom Harrison, Director of Projects & Partnerships with the Saskatchewan Watershed Authority.

A large majority of Saskatchewan's rural population relies on groundwater as their primary water source. Groundwater is obtained from underground formations known as aquifers – saturated soils that can yield water economically and in sufficient quantity to a well.

Some aquifers are susceptible to contamination simply because the area's geology provides a pathway into them. Others are reasonably well protected. Regardless, one pathway for contamination common to all aquifers is abandoned wells.

Normally, surficial glacial tills – the layers of soil overlying the aquifer – protect groundwater by intercepting most of the contamination from the surface and holding it until it can be naturally broken down into non-harmful products. However, every time a hole down to the aquifer is created, a direct avenue for contamination is opened.

In order to remove that contamination pathway, it is necessary to properly decommission wells that are no longer in use. While this procedure differs if the well in question is a small-diameter (drilled) well or a large-diameter (bored) well, it generally involves filling and sealing the well with a suitable uncontaminated material in a manner as to prevent water from moving up or down the well.

As a safety precaution, it is also recommended that a portion of the well casing near the surface be removed and covered over. This will help reduce the potential for harm to people, animals or machinery.

Under the new program, Authority staff will develop a fact sheet for the public regarding groundwater and aquifer management in an agricultural landscape. Several extension field days will also be held in 2005 and 2006.

The field days will focus not only on well abandonment and how to decommission a well, but also on the protection of highly vulnerable groundwater resources from agricultural sources, such as runoff from livestock pens or spilled chemicals. The events will be held in the Regina, Saskatoon, Cypress Hills/Gull Lake, Dundurn Sandhills and Yorkton areas.

Another concern that will be addressed by the program is the current lack of reliable data regarding the number of abandoned wells in Saskatchewan. Without this information, the extent of the risk cannot be quantified and the potential health and economic impacts cannot be measured. Through the program, Authority staff will be searching historical well location databases and updating current databases.

This program has received funding from Agriculture and Agri-Food Canada's Agricultural Environmental Stewardship Initiative and the Canada-Saskatchewan Water Supply Expansion Program.

Native Prairie Restoration Project

Students from Luther College High School in Regina work on their native prairie restoration project

The Native Prairie Restoration Project is a joint initiative partnering the Native Plant Society of Saskatchewan with the Saskatchewan Watershed Authority. It involves assisting schools and community groups within the Regina Plain in setting up small-scale native prairie restoration sites to serve as outdoor classrooms for hands-on environmental education. On a small-scale these restoration projects represent native plant communities, create wildlife habitat, provide educational opportunities, and preserve biological diversity of native plants on the Regina Plain.

A number of schools and community groups throughout the Regina Plain were offered a one-day informational seminar on prairie restoration, and groups were able to decide if a project was something they wanted to incorporate into their mandate. Plant Watch, delivered by Nature Saskatchewan, was also presented to the groups. The project uses data regarding flowering dates of certain species to teach students and volunteers about how the plants are responding to climate change and can be integrated into the restoration projects.

Response to the project was great! To date eleven schools and community groups have commenced their restoration projects. All groups have developed an individual project plan which reflects their needs and capabilities. Participants and volunteers will be seeding their plots with more than 50 native grasses and wildflower species in the fall of 2005 and the spring of 2006.

The Native Plant Society of Saskatchewan and the Saskatchewan Watershed Authority would like to thank Environment Canada through Ecoaction, City of Regina, Nature Saskatchewan, SaskPower and Saskatchewan Environment through the Fish and Wildlife Development Fund. Without their generous support this project would not be possible.

For further information about the project call Ben Sawa, Project Coordinator, at 787-0918 or email ben.sawa@swa.ca.

Did you know?

The retreat of the Laurentide glacier 10,000 years ago gave rise to the Prairie Ecoregion of southern Saskatchewan. The landforms and soils combined with harsh climatic conditions and natural disturbances, such as fire and grazing, played a significant role in the evolution of the native prairie plant community. But today, the soils and topography of the Regina Plain are so suitable for agriculture that less than one percent of the native prairie remains.

ATTENTION STUDENTS!!!

The Society for Range Management is dedicated to the conservation and sustainable management of rangelands for the benefit of current societies and for future generations through the promotion of the professional development and continuing education of members and the public and the stewardship of rangeland resources. SRM members come from Canada, the United States and Mexico.

Every February at its annual professional conference, the Society for Range Management hosts the High School Youth Forum – a means for deserving high school students from across the continent to learn about rangelands, ecosystems and the SRM.

The Prairie Parkland Chapter of the Northern Great Plains Section of the Society for Range Managment and Ducks Unlimited Canada want to send YOU (must be in high school!) to Vancouver, BC from February 12-17, 2006 to participate in the High School Youth Forum.

Send us a short 2-3 page paper about some aspect of range management ... what you've seen, an emerging issue, a unique management idea ... the possibilities are endless! The selected papers will be presented at the High School Youth Forum through a 6-8 minute PowerPoint® presentation. The top three presenters will have their papers published in the society's international publication, *Rangelands*.

Send your paper by November 1st, 2005 to:

Julie MacKenzie
Prairie Parkland Chapter Youth Director
Box 143
Hazenmore, SK S0N 1C0
Fax: 306-778-8271
E-mail: julie.mackenzie@swa.ca.

For more information check out the SRM website www.rangelands.org, the High School Youth Forum link at http://agronomy.unl.edu/range/hsyf.htm, or contact Julie at 774-4543.

Sponsorship for the Prairie Parkland Chapter's High School Youth Forum delegate is kindly provided by:

Saskatchewan Watershed Authority

Ducks Unlimited Canada

SRM

Hello Voluntary Stewards!

Thank you taking the time to read the Fall 2005 edition of our newsletter. We hope that you have enjoyed the articles we have included, and of course, we welcome any comments that you have. As always, our sincere thanks go to the voluntary stewards who agreed to share their thoughts with us in the profiles contained in this newsletter. These are excellent examples of projects that provide benefits to both the landowner and the land and water they work on.

You can find more information on the Prairie Stewardship Program in back issues of this newsletter. These issues, as well as interactive maps featuring other stewardship project demonstration sites, can be viewed on our Web site at www.swa.ca.

Angela Bethune

Ryan Lorge

Our Gracious Supporters

- *Canadian Wildlife Service and World Wildlife Fund (Endangered Species Recovery Fund)*
- *Department of Fisheries and Oceans Canada*
- *Ducks Unlimited Canada*
- *Environment Canada through Eco-ACTION*
- *Government of Canada Habitat Stewardship Program for Species at Risk*
- *National Fish and Wildlife Foundation (U.S.)*
- *Native Plant Society of Saskatchewan*
- *Nature Conservancy of Canada*
- *Nature Saskatchewan*
- *Nebraska Game and Parks Commission*
- *North American Wetlands Conservation Council*
- *Prairie Conservation Action Plan*
- *Saskatchewan Agriculture and Food*
- *Saskatchewan Environment through the Fish and Wildlife Development Fund*
- *SaskPower*
- *SaskPower- Shand Greenhouse*
- *The Nature Conservancy (U.S.)*
- *Wildlife Habitat Canada*
- *Wyoming Game and Fish Department*

Make your plans now to attend the 8th Prairie Conservation and Endangered Species Conference and Workshop. Hosted by the Prairie Conservation Action Plan Partnership of Saskatchewan, this leading conservation event is held once every three years in a Canadian prairie province, and attracts a wide audience from across Western Canada and the Midwestern United States.

The theme of the 2007 conference and workshop is *"Homes on the Range: Conservation in Working Prairie Landscapes."* Through a variety of engaging conference presentation and working group discussions, participants will identify opportunities and obstacles, needs and tools to address critical issues related to prairie landscape and species conservation.

"Homes on the Range" will be held March 1-3, 2007 at the Delta Regina Hotel. To ensure that you receive a registration package, please e-mail your name and mailing address to pcap@sasktel.net

North American Waterfowl Management Plan

The North American Waterfowl Management Plan is a highly successful international plan aimed at conserving habitat for waterfowl and other bird populations. A new publication detailing Saskatchewan's role in this ambitious initiative is now available. This publication is available in downloadable format on our website, www.swa.ca, or you can obtain a copy by contacting Ryan Lorge at 787-6958.

Coming Events

For more information please contact the following staff members in the office nearest you:

North Battleford
Jeremy Brown at 446-7460

Regina
Etienne Soulodre at 787-0661

Swift Current
Bob Springer at 778-8301
Krista Connick at 778-8280
Tara Mulhern Davidson at 529-7587
Julie MacKenzie at 778-8257

Yorkton
Jason Puckett at 786-5845

Weyburn
Ross Macdonald at 848-2354

Share Your Ideas!

If you have comments or ideas about this newsletter, please contact Angela Bethune at 787-8043 or e-mail: angela.bethune@swa.ca or Ryan Lorge at 787-6958 or e-mail: ryan.lorge@swa.ca.

For specific information about the Prairie Stewardship Program, please contact Jennifer Lohmeyer at 787-8707 or e-mail: jennifer.lohmeyer@swa.ca.

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